

Claims

1. Process for producing granular sodium percarbonate by fluid-bed spray granulation, wherein an aqueous sodium carbonate solution or sodium carbonate suspension and an aqueous hydrogen peroxide solution in the presence of at least one stability-enhancing additive is sprayed into a fluid bed containing sodium percarbonate particles and at the same time water is evaporated at a fluid-bed temperature within the range of 40 to 95 °C,

5 characterised in that
the additive used is a magnesium compound in a quantity of 50 to 2,000 ppm Mg²⁺ and/or a chelate complexing agent from among the hydroxycarboxylic acids, aminocarboxylic acids, aminophosphonic acids,

10 phosphonocarboxylic acids, hydroxyphosphonic acids and the alkali metal salts, ammonium salts or magnesium salts of the above-mentioned acids, in a quantity of 50 to 2,000 ppm, the quantity used in each case being based on the sodium percarbonate to be produced and a combination of a magnesium salt and a condensed phosphate being excepted.

15 2. Process according to claim 1,

characterised in that

a water-soluble Mg compound, in particular an Mg sulfate, Mg acetate or Mg salt of a chelate complexing agent, is used in a quantity of 100 to 1000 ppm Mg²⁺, in particular 200 to 1000 ppm.

20 3. Process according to claim 1 or 2,

characterised in that

30 the Mg compound is added to the aqueous H₂O₂ solution to be sprayed.

4. Process according to one of claims 1 to 3,
characterised in that,
a complexing agent selected from among nitrilotriacetic
5 acid, iminodiacetic acid, ethylenediaminetetraacetic
acid, iminodisuccinate, tartaric acid, gluconic acid,
aminotri(methylene)phosphonic acid,
ethylenediaminetetra(methylene)phosphonic acid,
diethylenetriaminepenta(methylene)phosphonic acid,
10 tri-, tetra-, penta- and
hexamethylenetetra(methylene)phosphonic acid and
1-hydroxyethane-1,1-diphosphonic acid or an Na-, K- or
Mg salt of the above-mentioned acids is used.
- 15 5. Process according to one of claims 1 to 4,
characterised in that
a complexing agent is used in a quantity within the
range of 100 to 1,000 ppm, in particular 200 to
1,000 ppm, and this is added to the H₂O₂ solution and/or
soda solution or soda suspension.
- 20 6. Process according to one of claims 1 to 5,
characterised in that
in addition waterglass having an SiO₂/Na₂O module in
the range of 1 to 3, in particular 1 to 2, in a
quantity corresponding to 0.1 to 1 wt.%, in particular
25 0.1 to 0.5 wt.% SiO₂, based on sodium percarbonate, is
used as stabiliser.
7. Process according to one of claims 1 to 6,
characterised in that
a 30 to 75 wt.% aqueous H₂O₂ solution and a soda
30 solution or soda suspension having an Na₂CO₃ content
within the range of 20 to 60 wt.%, in particular 30 to
50 wt.%, of which at least one of the solutions or the
suspension contains an additive from among the Mg
compounds and/or the above-mentioned chelate complexing

agents, are sprayed using a three-component or four-component atomising nozzle with external mixing and comprising a central pipe and two or three jacketed pipes disposed around it, with the central pipe
5 extending beyond the jacketed pipes by 2 to 10 times the radius of the central pipe.

8. Granular sodium percarbonate, characterised by (i) a grain structure obtainable by fluid-bed spray granulation, (ii) substantially evenly distributed in the grain, a content of a magnesium compound in a quantity of 50 to 2,000 ppm Mg^{2+} and/or a content of one or more chelate complexing agents from among the hydroxycarboxylic acids, aminocarboxylic acids, aminophosphonic acids, phosphonocarboxylic acids, hydroxyphosphonic acids and the alkali metal salts, ammonium salts and magnesium salts of the above-mentioned acids in a quantity of 50 to 2,000 ppm, excepting a combination of an Mg salt and a condensed phosphate, and a TAM value of equal to or less than 8 $\mu W/g$, in particular less than 7 $\mu W/g$, measured after 20 48 h at 40 °C.
9. Granular sodium percarbonate according to claim 8, characterised in that it has a single-layer or multilayer stabilising coating 25 consisting of one or more hydrate-forming salts.
10. Granular sodium percarbonate according to claim 8 or 9, characterised in that in addition waterglass in a quantity within the range 30 of 0.1 to 1 wt.% SiO_2 , in particular 0.1 to 0.5 wt.% SiO_2 , is substantially evenly distributed in the grain.